State of Wisconsin/Department of Transportation

RESEARCH PROGRESS REPORT FOR THE QUARTER ENDING: Mar 31, 2004

Program: SPR-0010(36) FFY99	**Part: II Research and Development**
Project Title: Life Cycle Cost Analysis of SMA Pavements and SMA Application Guidelines	**Project ID:** 0092-04-06
Administrative Contact: Nina McLawhorn	**Sponsor:**
WisDOT Technical Contact: Error! Bookmark not defined.	**Approved Starting Date:** Oct 1, 2003
Approved by COR/Steering Committee: $54,867.95	**Approved Ending Date:** Oct 1, 2004
Project Investigator (agency & contact): Harold VonQuintus: **Error! Bookmark not defined.**	

Description: Following are the research objectives:

Task 1: Information gathering and review
- Task 1a: Collection and review of SMA literature
- Task 1b: Identification of WisDOT SMA and standard e-mixture pavements
- Task 1c: Collection and review of WisDOT policy information

Task 2: Data Assembly
- Task 2a: Development of life cycle models
- Task 2b: Development of cost elements

Task 3: Conduct life cycle cost analysis

Task 4: Final Report
- Task 4a: Draft final report
- Task 4b: Revised final report

Total Study Budget	Current FFY Budget	Expenditures for Current Quarter	Total Expenditures to Date	Percent Complete
$54,867.95	**$27,433.97**	$8,374.00	**$18,533.00**	**33 (%)**

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Progress This Quarter:

(Includes project committee mtgs, work plan status, contract status, significant progress, etc.)

Work this quarter focused on assembling the database for the 24 stone matrix asphalt (SMA) projects and 23 polymer-modified asphalt (PMA) projects identified for investigation. Data assembly for 8 conventional E-mix projects (identified in January by WisDOT districts) to serve as comparisons for the SMA and PMA projects, was also performed. Efforts to identify several additional E-mix projects for use in the study continued throughout the quarter, but without success. The desired comparison projects should be similar to the SMA or PMA projects, in terms of cross-sectional design, traffic level, climate, and subgrade, but must include a standard E-mix surface instead of an SMA or PMA surface.

Data targeted in the data assembly effort included historical condition (distress, ride) data, extracted from the WisDOT pavement management database, and traffic data, obtained from the 2001 and 2002 Wisconsin Highway Traffic Volume reports. Also targeted, but with limited success, were unit cost data associated with the construction of the selected SMA, PMA, and conventional E-mix projects. The WisPrice software contains some project-level cost data, however, the data only cover projects back to 2000 and there are no construction project numbers that allow linkage to the SMA, PMA, and conventional E-mix projects.

Work Next Quarter:

During the next quarter, the project team will work closely with WisDOT to complete the identification of conventional E-mix comparison projects and to obtain all available project-level cost data. The team will then finalize the project database and conduct the analysis of performance data to determine the expected lives of each pavement surface type under different conditions. The team will also begin establishing the life-cycle models and cost parameters for each pavement type, which will feed directly into the LCCA.

Circumstances affecting progress/budget:

Progress has been significantly affected by the delay in finding conventional E-mix projects to serve as comparisons for the SMA and PMA projects. It is anticipated that if the final identification of comparison projects occurs by May 31, 2004, then at least a 3-month time extension to the project would be needed.

Gantt Chart:

RESEARCH TASK	2003				2004										EST. % COMP.
		Qtr 4			Qtr 1			Qtr 2			Qtr 3				
	S	O	N	D	J	F	M	A	M	J	J	A	S	O	
1a. Collection and Review of SMA Literature		50	100												**100**
1b. Identification of WisDOT SMA & Std E-Mix Pavements		50	100												**70**
1c. Collection and Review of WisDOT Policy Information		50	100												**100**
2a. Development of Life-Cycle Models			10	50	100										**35**
2b. Development of Cost Elements			10	50	100										**15**
3. Conduct Life-Cycle Cost Analysis					10	25	75	100							**0**
4a. Prepare Draft Final Report										WHRP Review					**0**
								25	100						
4b. Prepare Final Final Report															**0**
													100		
OVERALL % COMPLETION		15	32	43	59	62	72	82	96	96	96	96	100		**31**

Note: Gantt chart shown in State Fiscal Year Quarters